Pharmaceutics –I DPY-101

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		L W (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-101	Pharmaceutics-I	3	-	4	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I **Marks 16**

Introduction of different dosage forms.Their classification with examples-their relative applications. Familiarisation with new drug delivery systems. Introduction to Pharmacopoeias with special reference to the Indian Pharmacopoeia. Metrology-System of weights and measures.Calculations including conversion from one to another system.Percentage calculations and adjustment of products. Use of allegation method in calculations. Isotonic solutions.

Unit- II **Marks 16**

Packaging of pharmaceuticals-Desirable features of a container-types of containers.Study of glass and plastics as materials for containers and rubber as a material for closure-their merits and demerits.Introduction to acrosol packaging. Size reduction objectives and factors affecting size reduction, methods of size reduction- study of Hammer mill, ball mill, Fluid energy mill and Disintegrator. Size separation-size sepration by sifting. Official standards for powders. Sedimentation methods of size separation. Construction and working of Cylcone separator. Mixing and Homogenisation-Liquid mixing and powder mixing,Mixing of semisolid.Study of silverson Mixer-Homogeniser, planetary Mixer;Agirated powder mixer; Triple Roller Mill; Propeller Mixer, colloid Mill and Hand Homogeniser. Doublecone mixer.

Unit- III **Marks 16**

Clarification and Filtration-Theory of filtration,Filter media;Filter aids and selection of filters.Study of the following filtration equipments-Filter Press, sintered filters,Filter candles, Metafilter.

Extraction and Galenicals-(a)Study of percolation and maceration and theirmodification,continuous hot extraction-Application in the preparation of tinctrures and extracts.(b)Introduction to Ayurvedic dosage forms.Heat process-Evaporation-Definition-Factors affecting evarporation-study of evaporating still and Evaporating pan.Distillation-Simple distillation and Fractional distillation,steam distillation and vacuum distillation.Study of vacuum still,preparation of purified water I.P. and water for Injection I.P. construction and working of the still used for the same.

Unit- IV **Marks 16**

Introduction to drying process-Study of Tray Dryers; Fludized Bed dryer, Vacuum Dryer and Freeze Dryer. Sterlization-Concept of sterlization and its differences from disinfection-Thermal resistance of microorganisms. Detailed study of the following sterilization process

1. Sterlization with moist hear, 2. Dry heat sterilization, 3. Sterlization by radiation 4. Sterlization by filtration and 5. Gaseous sterlization. Aspetic techniques-Applications of sterlization process in hospitals particularly with reference to surgical dressings and intravenous fluids.Precautions for safe and effective handling of sterlization equipment.

Unit-V **Marks 16**

Processing of Tablets-Definition; different type of compressed tables and their properties.Processes involved in the production of tablets; Tablets excipients; Defects in tablets; Evaluation of Tablets; Physical standards including Disintegration and Dissolution. Tablet coating-sugar coating; films coating, enteric coating and microencapsulation (Tablet coating may be de.. in an elementary manner). Processing of Capsules-Hard and soft gelatin capsules; different sizes of capsules; filling of capsules; handling and storage of capsules. Special applications of capsules. Study of immunological products like sera, vaccines, toxoids & their preparations.

List of Practicals

Preparation (minimum number stated against each of the following categories illustrating different techniques involved.

1. Aromatic waters	3
2. Solutions	4
3. Spirits	2
4. Tinctures	4
5. Extracts	2
6. Creams	2
7. Cosmetic preparations	3
8. Capsules	2
9. Tables	2
10 .Preparations involving	2
12. Preparations involving	2
11. Opthalmic preparations	2

Books Recommended:

1. Indian Pharmacopoeia.
2. British Pharmacopoeia.
3. United State Pharmacopoeia.
4. Lachmen, L. & Lieberman, H.A., "Theory and Practice of Industrial Pharmacy", Verghese publishing house, Bombay.
5. Gennaro, A.R., Remington's "The Science and practice of Pharmacy", Lippincot, Wiliams & Wilkins, Philadelphia.
6. Aulton, M.E., "Pharmaceutics- The science of doses form design", Churchill Livingstone, London.
7. N. K. Jain, Text Book of Professional Pharmacy, CBS Publishers & Distributors. New Delhi.
8. B. M. Mithal, Text Book of Pharmaceutical Formulation

Pharmaceutical Chemistry-I DPY-102

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		L W (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-102	Pharmaceutical Chemistry-I	3	-	3	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I **Marks 16**

General discussion on the following inorganic compounds including important physical and chemical properties , medicinal and pharmaceutical uses,storage conditions and chemical incompatibility.

A. Acids, bases and buffers-Boric acid, Hydrochloric acid, strong ammonium hydroxide, Sodium hydroxide and official buffers.

B. Antioxidants, Hypophosphorous acid, Sulphur dioxide, sodium bisulphite, sodium meta- bisulphite,sodium thiosulphate ,Nitrogen and sodium Nitrite.

C. Gastrointestinal agents-

i. Acidifying agents-Dilute hydrochloric acid

ii. Antacids-Sodium bicarbonate,Aluminium hydroxide gel,Aluminium phosphate,calcium carbonate,Magnesium carbonate ,Magnesium trisilicate,Magnesium oxide,combinations of antacid preparations.

iii. Protectives and Adsorbents-Bismuth subcarbonate and Kaolin.

iv. Saline cathartics-sodium potassium tartrate and Magnesium sulphate.

D. Topical Agents-

i. Protectives-Talc,Zinc Oxide,Calamine,Zinc stearate, Titanium dioxide, silico polymers.

ii. Antimicrobials and Astringents-Hydrogen peroxide*,potassium permanganate, chlorinated lime, Iodine, solutions of Iodine,povidone- iodine, Boric acid, Borax, Silver nitrate, Mild silver protein, Mercury yellow, mercuric oxide,Ammoniated mercury.

iii Sulphur and its compounds-Sublimed sulphur, precipitated sulphur, selenium sulphide.

iv. Astringents-Alum and Zinc Sulphate.

E. Dental Products-Sodium flouride,stannous flouride,calcium carbonate,sodium meta phosphate,Dicalcium phosphate ,strontium chloride,Zinc chloride.

F. Inhalants-Oxygen,carbon dioxide,Nitrous oxide. G. Respiratory stimulants-Ammonium carbonate.

H. Expectorants and Emetics-Ammonium chloride*,Potassium iodide,Antimony potassium tartrate.

I. Antidotes-sodium nitrite.

Unit- II **Marks 16**

A. Electrolytes used for replacement therapy-sodium chloride and its preparations, potassigum chloride and its preparation

B. Physioloical acid-base balance and electrolytes used-sodium acetate, potassium, Acetate, sodium bicarborate Inj. Sodium citrate, potassium citrate, sodium lactate injection, Ammonium chloride and its injection.

C.Combination of oral electrolyte of Iron, Iodine and calcium, ferrous sulfate and calcium gluconate.

Unit- III **Marks 16**

Major Intra and Extracellular electrolytes-Inorganic Official Compounds of Iron, Iodine and Calcium, Ferrous Sulphate and Calcium Gluconate. Identification tests for cations and anions as per Indian pharmacopoeia.

Unit- IV **Marks 16**

Radio pharmaceuticals and contrast media-Radio activity-Alpha; Beta and Gamma Radiations, Biological effects of radiations, Measurement of radio activity, G.M. Counter Radio isotopes-their uses, storage and precautions with special reference to the official preparations. Radio opaque contrast media-Barium sulfate.

Unit- V **Marks 16**

Quality control of Drugs and pharmaceuticals-Importance of quality control significant error, methods used for quality control, sources of impurities in pharmaceuticals. Limit tests for Arsenic, chloride sulfate , Iron and Heavy metals.

List of Practicals

1. Identification tests for inorganic compounds particularly drugs and pharmaceuticals.
2. Limit test for chloride, sulfate, Arsenic, Iron and Heavy metals.
3. Assay of inorganic pharmaceuticals involving each of the following methods of compounds marked with (*) under theory.

a. Acid-Base titrations(at least 3)
b. Redox titrations (one each of permanganometry and iodimetry). c. Precipitation titrations (at least 2)
d. Complexometric titration (calcium and Magnesium).

Books Recommended

1. L.M. Atherdon, Bently and Drivers: Textbook of pharmaceutical chemistry, Oxford, University press.
2. Pharmacopoeia of India, Govt. of India, Ministry of Health, Delhi.
3. J.H. Block, E. Roche, T.O. Soine and C. O. Wilson: Inorganic Medicinal and Pharmaceutical chemistry, Lee Febiger, Philadelphia. PA.
4. M. Ali: Text book of Pharmaceutical Inorganic chemistry, CBS, New Delhi.
5. Mellor's Modern Inorganic Chemistry, Longman Green and Co., Ltd., London.
6. Beckett & Stenlake, Practical Pharmaceutical Chemistry
7. Liptrot G.F. Modern Inorganic Chemistry, Blantyre Printing
8. British Pharmacopoeia, Stationary Press, Royal Society of Pharmaceutical Press, London.
9. United State Pharmacopoeia, United State Pharmacopoeial Convention, Inc., 12601. Twinbrook Parkway, Rockyville M.D. 20852 USA.
10. Lovis F. Fiesev D.C. Experiments in Inorganic Chemistry, Health and Company, Boston.
11. Vogel Text Book of Quantitative Chemical Analysis, Longman, London.
12. Remington Practical of the Science and Pharmacy, Mack Publishing Company, Eston, Pennsylvania, USA.

Pharmacognosy DPY-103

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		LW (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-103	Pharmacognosy	3	-	3	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I **Marks 16**

Definition,hostory and scope of pharmacognosy including indigenous system of medicine. Various systems of classification of durgs and natural origin.

Unit- II **Marks 16**

Adulteration and drug evaluation;significance of pharmacopoeial standards. Brief outline of occurence,distribution,outline of isolation, identification tests, therapeutic effects and pharmaceutical application of alkaloids,terpenoids,glycosides,volatile oils,tannins and resins.

Unit- III **Marks 16**

Occurence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic eficacy of following categories of drugs.

a. Laxatives:Aloes,Rhuburb,Castor oil,Ispaghula,Senna.
b. Cardiotonics:Digitalis,Arjuna.
c. Carminatives & G.I.regulators- Umbelliferous fruits, coriander, fennel, Ajowan, Cardamon, Ginger,Black pepper, Asafoetida, Nutmeg, cinnamon, clove.
d. Astringents-Catecheu.
e. Drugs acting on nervous system- Hyoscyamus, Belladonna, Aconite, Ashwagandha, Ephedra,opium,cannabis,Nux vomica.
f. Antihypertyensives-Rauwolfia
g. Antitussives-Vasaka,Tolu balsam,Tulsi h. Antirheumatics-Guggal,colchicum.
i. Antitumour-vinca.
j. Antileprotics-chaulmoogra oil.

Unit- IV **Marks 16**

. Occurence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of following categories of drugs.

a. Antidiabetics- pterocarpus, Gymnema, sylvestro. b. Dimetics- Gokhru, punarnava
c. Antidysenterics- Ipecacuanha
d. Antiseptics and disinfectants. Benzoin, Myrrh Nim, curcuma e. Antimalarials-cinchona
f. Oxytocics-Ergot
g. Vitamins-Shark liver oil and Amla h. Enzymes-papaya, diastase, yeast
i. Perfumes and flavouring agents-peppermint oil,Lemon oil,Orange oil,lemon grass oil sandalwood.
j. Pharmaceutical aids-Honey, Arachis oil,starch, kaolin, pectin,olive oil. Lanolin, Beeswax, Acacia, Tragacanth, Sodium Alginate, Agar, Guar gum, Gelatin.
k. Miscellaneous - Liquorice, Garlic, picharehize, Dirscorea, Linseed, shatavari, shankhpushpi, pyrethrum, Tobacco.

Unit- V **Marks 16**

Collection and preparation of crude drugs for the market as examplified by Ergot, opium, Rauwalfia, Digitalis, senna .Study of source, preparation and identification of fibres used in sutures and surgical dressings-cotton, silk, wool and regenerated fibres.Gross anatomical studies of-Senna, Datura, Cinnamon, Cinchona, Fennal, Clove, Ginger, Nuxvomica & Ipecacuanha.

List of Practicals:

1. Identification of drugs by morphological characters.
2. Physical and chemical tests for evaluation of drugs wherever applicable.
3. Gross anatomical studies(t.s.)of the following drugs :Senna, Datura, Cinnamon, Cinchona, Coriader, Fennel, Clove, Genger, Nuxvomica, Ipecacuanha.
4. Identification of fibres and surgical dressing.

BOOKS RECOMMENDED:

1. Text Book of Pharmacognosy – C.S. Shah & J. S. Quadry
2. Text Book of Pharmacognosy – T.E. Wallis
3. Pharmacognosy – Trease & Evans
4. Pharmacognosy – Brady & Taylor
5. Text Book of Pharmacognosy – V.K. Kapoor & S.S.Handa
6. Pharmacognosy – C.K.Kokate, A.P.Purohit, S.B.Gokhale.

Biochemistry and Clinical Pathology DPY-104

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		L W (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-104	Biochemistry & Clinical Pathology	2	-	3	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I **Marks 16**

Introduction to biochemistry. Brief chemistry and role of proteins,polypeptides and amino acids, classification, Qualitative tests, Biological value, Deficiency diseases.

Unit- II **Marks 16**

Brief chemistry and role of carbohydrates,classification,qualitative tests, Diseases related to carbohydrate metabolism.

Unit- III **Marks 16**

Brief chemistry and role of lipids,classification qualitative tests.Diseases related to lipids metabolism.

Unit- IV **Marks 16**

Brief chemistry and role of vitamins and coenzymes. Role of minerals and water in life processes.

Unit- V **Marks 16**

Enzymes;Brief concept of enzypic action.factors affecting it.Therapeutic and lipids. Introduction to pathology of blood and urine.

a. Lymphocytes and platelets, their role in health and disease. b. Erythrocytes-Abnormal cells and their significance.

c. Abnormal constituents of urine and their significance in diseases.

List of Practicals

1. Detection and identification of proteins. Amino acids, carbohydrates and lipids.
2. Analysis of normal and abnormal constituents of Blood and Urine (Glucose, urea, creatine, cretinine, cholesterol, alkaline phosphatatase, acid phosphatase, Bilirubin, SGPT, SGOT, calcium, Diastase, Lipase).
3. Examination of sputum and faeces (microscopic & staining).
4. Practice in injecting drugs by intramuscular, subcutaneous and intravenous routes, withdrawal of blood samples.

Books Recommended

1. Martin, D.W., Mays, P.A. and Redwell, V.M., Harper's Review of Biochemistry, Lange medical Publication.
2. Horrow, B. and Mazur, A., Text book of biochemistry, W.B. Saunders Co.Philadelphia.

3. Lehninger, A.L., Principles of Biochemistry, CBS Publishers and Distributors.

4. Lehninger, A.L., Biochemistry, Worth Publishers Inc.

5. Stryer, L., Biochemistry, W.H. Freeman and Co. San Franscisco.

6. Plumer, D.T., An Introduction to Practical Biochemistry, Tata McGraw Hill, New Delhi.

7. Jayaraman, J., Laboratory manual in Biochemistry, Wiley eastern Ltd., New Delhi.

Human Anatomy And Physiology DPY-105

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		L W (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-105	Human Anatomy & Physiology	3	-	2	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I **Marks 16**

Scope of Anatomy and physiology.Definition of various terms used in Anatomy. Structure of cell, function of its components with special reference to mitochondria and microsomes. Elementary tissues of the body,i.e.epithelial tissue,muscular tissue, connective tissue and nervous tissue.

Unit- II **Marks 16**

Structure and function of skeleton. Classification of joints and their function. joint disorder.Composition of blood,functions of blood elements. Blood group and coagulation of blood. Brief information regarding disorders of blood.Name and functions of lymph glands.

Unit- III **Marks 16**

Structure and functions of various parts of the heart. Arterial and venous system with special reference to the names and positions of main arteries and veins.Blood pressure and its recording.Brief information about cardioavscular disorders.Various parts of respiratory system and their functions, physiology of respiration. Various parts of urinary system and their functions, structure and functions of kidney. Physiology of urine formation. pathophysiology of renal diseases and oedema.

Unit- IV **Marks 16**

Structure of skeletal muscle,physiology of muscle contraction. Names, positions, attachments and functions of various skeletal muscles. physiology of neuromuscular junction.Various parts of central nervous system,brain and its parts,functions and reflexaction.Anatomy and physiology of automatic nervous system.Elementry knowledge of structure and functions of the organs of taste, smell, ear, eye and skin.physiology of pain.

Unit- V **Marks 16**

Digestive system;names of various parts of digestive system and their functions, structure and functions of liver, physiology of digestion and absorption. Endocrine glands and Hormones. Location of glands, their hormones and functions, pituitary, thyroid. Adrenal and pancreas Reproductive system-physiology and Anatomy of Reproductive system.

List of Practicals

1. Study of the human skelton.
2. Study with the help of charts and models of the following system and organs:

a. Digestive system

b. Respiratory system
c. Cardiovascular system d. Urinary system
e. Reproductive system f. Eye
g. Ear
3. Microscopic examination of epithelial tissue, cardiac muscle, smooth muscle, skeletal muscle. Connective tissue and nervous tissues.
4. Examination of blood films for TLC.DLC and malarial parasite.
5. Determination of clotting time of blood,erythrocycle sedimentation rate and Haemoglobin value.
6. Recording of body temperature,pulse,heart-rate,blood pressure and ECG.

Books Recommended

1. Gerard J. Tortora and Nicholas P. Anagnostakos ; Principles of Anatomy and physiology Harper and Row publishers, New York.
2. Sujit K. Chaudhuri: Concise Medical Physiology.
3. C.C. Chatterjee: Human Physiology.
4. Kathleen J.W., Wilson Ross and Wilson: Anatomy and Physiology in Health and Illness
5. Arthur C. Guyton: Textbook of Medical Physiology.
6. Cyril A. Keele, Erie Neil, Norman Joels and Samson Wrights: Applied Physiology
7. Chatterjee, C.C, **Human Physiology**, Medical allied agency, Calcutta.
8. Shalya, Subhas**, Human Physiology** CBS publisher Delhi.
9. Ross and Wilson, **Human anatomy and Physiology**, Churchill Livingstone London.
10. Chaurasia, B.D, **Human anatomy, Regional and applied.** , CBS publisher New Delhi

Health **Education and Community Pharmacy DPY-106**

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d=a+c)	Practical		L W (g)	Total (h=e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-106	Health Education & Community Pharmacy	2	-	-	-	80	40	20	100	-	-	-	-	100	3 Hrs

Unit- I **Marks 16**

Concept of health: Definition of physical health, mental health ,social health, spiritual health determinants of health, indicatory of health, concept of disease, natural history of diseases,the disease agents, concept of prevention of diseases. Nutritution and health: Classification of foods, requirements, diseases induced due to deficiency of proteins, vitamins and minerals-treatment and prevention.

Unit- II **Marks 16**

Demography and family planning: Demography cycle,fertility,famil planning,contraceptive methods, behavioural methods, natural family planning methods, chemical methods, mechanical methods, hormonal cotraceptives, population problem of India. First aid: Emergency treatment in shock, snake-bite, burns, poisoning, heart disease, fractures and resuscitation methods, Elements of minor surgery and dressings.

Unit- III **Marks 16**

Environment and health: Source of water suply, water pollution, purification of water, health and air, noise, light-solid waste disposal and control-medical entomology, arthropod borne diseases and their control. rodents, animals and diseases.Fundamental principles of microbiology: Classification of microbes,isolation,staining techniques of organisms of common diseases.

Unit- IV **Marks 16**

Communicable diseases: Causative agents, mode of transmission and prevention.

a. Respiratory infections-chicken pox, measles, influenza, diphtheria, whooping cough and tuberculosis.

b. Intestinal infection-poliomyelitis, Hepatitis, cholera, Typhoid, food poisoning, Hookworm infection.

c. Arthropod borne infections- Plague, Malaria, filariasis. d. Surface infection-Rabies, Trachoma, Tetanus, Leprosy.

e. Sexually transmitted diseases-Syphilis, Gonorrhoea, AIDS.

Unit- V **Marks 16**

Non-communicable diseases: causative agents, prevention, care and control.Epidemiology: Its scope, methods, uses, dynamics of disease transmission. Immunity and immunization : Immunological products and their dose schedule.Principles of disease control and prevention ,hospital acquired infection, prevention and control. Disinfection, types of disinfection procedures , for-feces, urine, sputum, room linen, dead-bodies, instruments.

BOOKS RECOMMENDED:

1. Allwodd M. C. and Fell J. T., Text book of Hospital Pharmacy, Blackwell Scientific Publication, Oxford.
2. Hassan W. E., Lea and Febiger, Philadelphia Hospital Pharmacy.
3 J.S. Qadry, R.K. Goyal & R.K. Parika, Merchant & Qadry's a text book of Hospital Pharmacy, B.S. Shah Prakashan, Ahmedabad.
4. Pratibha Nand & R.K. Khar, Text Book of Hospital & Clinical Pharmacy, Birla Publications Pvt Ltd., Delhi.
5. S.J. Carter (Ed.),Cooper & Gunn's Dispensing for Pharmaceutical Students, CBS Publishers & Distributors, New Delhi.
6. R.M. Mehta, Dispensing Pharmacy, Vallabh Prakashan, Delhi.
7. S.N. Sharma & N.K. Jain, the Concise Pharmaceutical Dispensing, Prakash B. Printers, Baroda.
8. N.K. Jain & G.D. Gupta, Modern Dispensing Pharmacy, PharmaMed Press, Hyderabad.
9. E.W. Martin, Dispensing of Medications (Formerly Husa's Pharmaceutical Dispensing) Mack Publishing Company, Eastern Pa.

Pharmaceutics II DPY- 201

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duratio n of Exam
						Theory		Sessi onal T (c)	Total (d= a+c)	Practical		LW (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-201	Pharmac eutics-II	3	-	4	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I Marks 16

Dispensing Pharmacy

i. Prescriptions-Reading and understanding of prescriptions;Latin terms commonly used (Detailed stury is not necessary),Modern methods of prescribing,adoption of metric system.Calculations involved in dispensing.

ii. Incompatibilities in prescriptions-study of various types of incompatibilities- physical,chemical and therapeutic.

iii. Posology-Dose and dosage of drugs,factors influencing dose,calculations of doses on the basis of age,sex and surface area veterinary doses.

Unit- II Marks 16

Dispensed Medications:

(Note:A detailed study of the following dispensed medication is necessary. Methods of preparation with theoretical and practical aspects, use of appropriate containers and closures. Special labelling requirements and storage conditions should be high-lighted).

i. Powders-Type of powders- Advantages and disadvantages of powders,Granules,cachets and tablet triturates. preparation of different types of powders encountered in prescriptions.Weighing methods,possible errors in weighing,minimum weighable amounts and weighing of a material below the minumum weighable amount,geometric dilution and proper usage and care of dispensing balance.

ii. Liquid oral Dosage forms:

a. **Monophasic**-Theoretical aspects including commonly used vehicles,essential adjuvant like stabilizers, colourants and flavours,with examples.

Review of the following monophasic liquids with details of formulation and practical methods

Liquids for internal administration Mixtures and concentrates, Syrups, Elixirs.

Liquids for external administration or used on mucous membranes Gargles, Mouth washes, Throat-paints, Douches, Ear Drops, Nasal drops & Sprays, Liniments, Lotions.

b. **Biphasis Liquid Dosage Forms:**

i. Suspensions(elementary study)-Suspensions containing diffusible solids and liquids and their preparations. Study of the adjuvants used like thickening agents, wetting agents, their necessity and quantity to be incorporated, suspensions of precipitate forming liquids like tinctures,their preparations and stability. suspensions produced by chemical reaction. An introduction to flocculated /non- flocculated suspension system.

ii. Emulsions-Types of emulsions, identification of emulsion system, formulation of emulsions,

selection of emulsifying agent. Instabilities in emulsions, preservation of emulsions.

Unit- III Marks 16

Semi-Solid Dosage Forms:

a. Ointments:Types of ointments,classification and selection of dermatological vehicles.Preparation and stability of ointments by the following processes:
i. Trituration ii. Fusion
iii. Chemical reaction iv. Emulsification.

b. Pastes: Differences between ointments and pastes, Bases of pastes. preparation of pastes and their preservation .

c. Jellies: An introduction to the different types of jellies and their preparation.

d. An elementary study of poultice.

e. Suppositories and Pessaries-Their relative merits and demerits, types of suppositories, suppository bases, classification, properties. Preparation and packing of suppositories. Use of suppositories of drug absorption.

Unit- IV Marks 16

Dental and cosmetic preparations: Introduction to Dentrifices, facial cosmetics, Deodorants. Antiperspirants , shampoo, Hair dressings and Hair removers.

Unit- V Marks 16

Sterile Dosage forms:

a. Parenteral dosage forms-Definition,General requirements for parenteral dosage forms.Types of parenteral formulations,vehiches,adjuvants,processing,personnel,facilities and quality control.preparation of Intravenous fluids and admixtures-Total parenteral nutrition,Dialysis fluids.

b. Sterility testing,particulate matter monitoring-Faculty seal packaging.

c. Ophthalmic products-study of essential characteristics of different ophthalmis preprations.

Formulation additives, special precautions in handling and storage of ophthalmic products.

List of Practicals

Practicals based on dispensing of at least 100 products covering a wide range of preparations such as mixtures, emulsion, solutions, liniments, E.N.T. preparations. Ointments, suppositories, powders, incompatible prescriptions etc.

Books Recommended:

1. Indian Pharmacopoeia.
2. British Pharmacopoeia.
3. United State Pharmacopoeia.
4. Lachmen, L. & Lieberman, H.A., “Theory and Practice of Industrial Pharmacy”, Verghese publishing house, Bombay.
5. Gennaro, A.R., Remington’s “The Science and practice of Pharmacy”, Lippincot, Wiliams & Wilkins, Philadelphia.
6. Aulton, M.E., “Pharmaceutics- The science of doses form design”, Churchill Livingstone, London.
7. N. K. Jain, Text Book of Professional Pharmacy, CBS Publishers & Distributors. New Delhi.
8. B. M. Mithal, Text Book of Pharmaceutical Formulation.

Pharmaceutical Chemistry II DPY- 202

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duratio n of Exam
						Theory		Sessi onal T (c)	Total (d= a+c)	Practical		LW (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-202	Pharmac eutical Chemistr y-II	4	-	3	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit- I **Marks 16**

Introduction to the nomenclature of organic chemical systems with particu reference to hetero-cyclic system containing upto 3 rings.

Unit- II **Marks 16**

The chemistry of following pharmaceutical organic compounds covering their nomenclatre, chemical structure,uses and the important physical and chemical properties(chemical structure of only those compounds marked with asterisk (*).The stability and storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names Antiseptics and Disinfectants-proflavine*.phthaly1sulfathiazole, methoxazole, co- trimoxazole, sulfacetamide*

Antileprotic Drugs- Clofazimine Thiambutosine, Dapsone*,solapsone,

Anti-tubercular Drugs- Isoniazid*,PAS*,Streptomycin,Rifampicin,Ethambutol*,Thiacetazone,Ethionamide,Trimethoprim.

Tranquilizers-chlorpromazine*, prochlorperazine, Trifluoperazine, Thiothixene, Haloperiodol*, Triperiodol, oxypertine, chlordizepoxide, Diazepam*, Lorazepam, Meprobamate.

Hypnotics-phenobarbitone*,Butobarbitone, cylobarbitone, Nitrazepam, Glutethimide*, Methyprylon,paraldehyde,Triclofosodium.GeneralAnaestheticsHalothane*,cyclopropane*,Diethyl ether*, Methohexital sodium,Thiopecal cycloserine, pyrazinamide*.

Antimoebic and Anthelmintic Drugs -Emetine, Metronidazole, Halogenated hydroxyquinolines,diloxanide furoate, paromomycin ,piperazine*, Mebendazole ,D.E.C.* Antibiotics

Benzylpenicillin*,Phenoxymethylpenicillin*,Benzathinepenicillin,Ampicillin*,cloxacillin, carbencicillin, Gentamicin, Neomycin, Erythromycin, Tetracycline, cephalexin, cephaloridine, cephalothin, Griseofulvin, Chloramphenicol.

Unit- III **Marks 16**

The chemistry of following pharmaceutical organic compounds covering their nomenclatre, chemical structure,uses and the important physical and chemical properties(chemical structure of only those compounds marked with asterisk (*).

The stability and storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names.

Antifungal agents- Udecylenic acid, Tolnaftate,Nystatin,Amphotericin,Hamycin.

Antimalarial Drugs chloroquine*, Amodiaquine, primaquine, proguanil, pyrimethamine*, Quinine, sodium, Trichloroethylene .

Antidepressant Drugs Amitriptyline,Nortryptyline,Imperamine*,Phepelzine,Tranylcypromine.

Unit- IV **Marks 16**

The chemistry of following pharmaceutical organic compounds covering their nomenclatre, chemical structure,uses and the important physical and chemical properties(chemical structure of only those compounds marked with asterisk (*). The stability and storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names.

Analeptics- Theophylline,Caffeine*,coramine*,Dextro-amphctamine.

Adrenergic drugs- Adrenaline*, Noradrenaline, Isoprenaline*, Phenylephrine, salbutamol, Terbutaline, Ephedrne*,pseudoephedrine.

Adrenergic antagonist- Tolazoline,propranolol*,practolol.

Cholinergic Drugs- Neostigmine*, pyridostigmine, pralidoxime, pilocarpine,physostigmine*.

Cholinergic Antagonists-Atropine*, Hyoscine, Homatropine, propantheline*, Benztropine,Tropicamide,Biperiden*.

Diuretic Drugs- Furosemide*,chlorothiazide, Hydrochlorothiazidc* Benzthiazide,Urea*, Mannitol*, Ethacrynic Acid.

Cardiovascular Drugs- Ethylnitrite*,Glyceryl trinitrate. Alpha methy dopa, Guanethidine, clofibrate, Quinidine.

Unit- V **Marks 16**

The chemistry of following pharmaceutical organic compounds covering their nomenclatre, chemical structure,uses and the important physical and chemical properties(chemical structure of only those compounds marked with asterisk (*).The stability and storage conditions and the different type of pharmaceutical formulations of these drugs and their popular brand names.

Hypoglycemie Agents-Insulin, chlorpropamide*, Tolbutamide, Glibenclamide, phenformin*, Methformin.

Coagulants and Anti coagulants Heparin, Thrombin, Menadione*, Bisphydroxycoumarin, warfarin sodium.

Local Anaesthetics-Lignocaine*,Procaine*,Benzocaine, Histamine and anti Histaminic Agents-Histamine, Diphenhydramine*, Promethazine, cyproheptadine, Mepyramine*, pheniramine, chlorpheniramine*,

Analgesics and Anti-pyretics-Morphine, pethidine, codeine, Mathadone, Aspirin* paracetamol, Analgin, Dextropropoxphene, pentazocine.

Non-steriodal anti-inflammatory agents-Indomethacin*, phenylbutazone*, oxyphenbutazone, Ibuprofen.

Diagnostic Agents-Lopanoic Acid, propyliodone, sulfobromopthalein, sodium, Thyroxine andAntithyroidThyroxine*,methimazole,Methylthiouracil,propylthiouracil.Indigotindisulfona te, Indigo Carmine, Evans blue, congo Red,.,Fluoresceinsodium.progesterone,cyclophosphamide, Daunorubicin, Hydrochoride, Fluorouracil, Mercaptopurine ,Methotrexate, Mytomycin. Testosterone, oestradiol, Nandrolone.

Anti-Neoplastic Drugs-Actinomycin, Azathioprie, Busulphan, chloramubucil, cisplatin Anticonvulsants, cardiac glycosides, Antiarrhythmic antihypertensives & vitamins.

Steroidal Drugs-Betamethasone, Cortisone, Hydrocortisone, prednisolone,

List of Practicals

1. Systematic qualitative testing of ogranic drugs involving solubility determination,melting point and/or boiling point,detection of elements and functional groups (10 compounds).
2. Official identification tests for certain groups of drugs included in the I.P. like barbiturates, sulfonamides, phenothiazines,Antibiotics etc.(8 compounds).

3. Preparation of three simple organic preparations.

Books Recommended:

1. Foye, W.C., Principles of Medicinal Chemistry, Lea and Febiger, Philadelphia.
2. Wolff , M.E. Ed., Burger's Medicinal Chemistry, John Wiley and Sons, NewYork.
3. Hansch, C., Comprehensive Medicinal Chemistry, Pergarnon Press, Oxford.
4. Delagado, J.N. and Remers, W.A.R, Wilson and Giswold's Text Book of Organic,Medicinal and Pharmaceutical Chemistry, J.Lippincott Co., Philadelphia.
5. Nogrady, T., Medicinal Chemistry-A Biochemical Approach, Oxford University Press, New York, Oxford.
6. Kar, A., Medicinal Chemistry, Willey Eastern Ltd., New Delhi.
7. Patrick, G., An Introduction to Medicinal Chemistry, Scientific Distributors, Mumbai.
8. Malone, Dyson and Purey, May's Chemistry of Synthetic Drugs.
9. Parimoo, P., Text Book of Medicinal Chemistry, CBS Publishers and Distributors, New Delhi.
10. Thomas, G., Introduction to Medicinal Chemistry, CBS Publishers and Distributors, New Delhi.

Pharmacology & Toxicology DPY- 203

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duratio n of Exam
						Theory		Sessi onal T (c)	Total (d= a+c)	Practical		LW (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-203	Pharmac ology & Toxicolo gy	3	-	2	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit I Marks: 16

1. Introduction to pharmacology, scope of pharmacology.
2. Routes of administration of drugs, their advantages and disadvantages.
3. Various processes of absorption of drugs and the factors affecting them. Metabolism, distribution and excretion of drugs.
4. General mechanism of drugs action and their factors which modify drugs action.

Unit II Marks: 16

Pharmacological classification of drugs.The discussion of drugs should emphasise the following aspects:

i Drugs acting on the central Nervous system:

a. General anaesthetics, adjunction to anaesthesia, intravenous anaesthetics.

b.Analgesic antipyritics and non-steroridal, Anti-inflammatory drugs, Narcotic analgesics. Antirheumatic and antigout remedies. Sedatives and Hypnotics, psychopharmacological agents, anticonvulsants, analeptics.

c. Centrally acting muscle relaxants and antiparkinsonism agents. ii Local anaesthetics.

Unit III Marks: 16

Drugs acting on autonomic nervous system.

a. Cholinergic drugs, Anticholinergic drugs, anticholinesterase drugs. b. Adrenergic drugs and adrenergic receptor blockers.

c. Neurone blockers and ganglion blockers.

d. Neuromuscular blockers,used in myasthenia gravis.

Drugs acting on eye, Mydriatics drugs used un glaucoma.

Drugs acting on respiraotory system-Respiratory stimulants, Bronchodilators, Nasal decongestants, Expectorants and Antitussive agents. Antacids, Physiological role of histamine and serotonin, Histamine and Antihistamines, Prostaglandins.Cardio vascular drugs, cardiotonics, Antiarrhythmic agents, Antianginal agents,Antihypertensive agents,peripheral Vasodilators and drugs used in atherosclerosis.

Unit IV Marks: 16

Drugs acting on the blood and blood forming organs. Haematinics, coagulants and anticoagulants,Haemostatics, Blood subtitutes and plasma expanders. Drugs affecting renal function- Diuretics and antidiuretics.Hormones and hormone antagonists- Hypoglycemic

agents,Antithyroid drugs,sex hormones and oral contraceptives , corticosteroids.Drugs acting on digestive system- carminatives, digestants, Bitters, Antacids and drugs used in peptic ulcer, purgatives ,and laxatives, Antidiarrohoeals, Emetics, Antiemetics, Antispasmodics.

Unit V **Marks: 16**

Chemotherapy of microbial disease:Urinary antiseptics, sulphonamides, Penicillins, Streptomycin, Tetracyclines and other antibiotics. Antitubercular agents, Antifungal agents, antiviral drugs, antileprotic drugs.Chemotherapy of protozoal diseases, Anthelmintic drugs.Chemotherapy of cancer.Disinfectants and antiseptics. A detailed study of the action of drugs on each organ is not necessary.

List of Experiment

The first six of the following experiments will be done by the students while the remaining will be demonstrated by the teacher.

1. Effect of potassium and calcium ions,acetylcholine and adrenaline on frog's heart.
2. Effect of acetyl choline on rectus abdominis muscle of frog and guinea pig ileum.
3. Effect of spasmogens and relaxants on rabbits intestine.
4. Effect of local anaesthetics on rabbit cornea.
5. Effect of mydriatics and miotics on rabbit's eye.
6. To study the action of strychnine on frog.
7. Effect of digitalis on frog's heart.
8. Effect of hypnotics in mice.
9. Effect of convulsants and anticonvulsant in mice or rats.
10. Test for pyrogens.
11. Taming and hypnosis potentiating effect of chlorpromazine in mice/rats.
12. Effect of diphenhydramine in experimentally produced asthma in guinea pigs.

Books Recommended:

1. Satoskar, R.S. and Bhandarkar, S.D., Pharmacology and Pharmacotherapeutics.
2. Tripathi, K.D., Essentials of Medical Pharmcology.
3. Kulkarni, S.K., Handbook of Experimental Pharmacology, Vallabh Prakashan, New Delhi.
4. Crossland, J and Thomson, J.H., Essential of Pharmacology, Harper and Row, Publishers, New York.
5. Craig, C.R. and Stitzel, R.R., Modern Pharmacology, Little Brown and Company.
6. Rang, M.P. , Dale, M.M. and Riter, J.M., Pharmacology, Churchill Livingstone.
7. Paul, L., Principles of Pharmacology, Chamman and Hall.
8. Herfindal, E.T. and Hirschman, J.L., Clinical Pharmacy and Therapeutics, William and Wilkins.
9. Katzung, B.G., Basic and Clinical Pharmacology, Prentice Hall International.
10. Hardmen, J.G., Limbired, L.E., Molinoss, P.B., Ruddon, R.W. and Gil, A.G., Goodman and Gillman's The Pharmacological basis of Therapeutics, Pergamon Press.
11. Satoskar, R.S. and Bhandarkar, S.D., Pharmacology and Pharmacotherapeutics.
12. Tripathi, K.D., Essentials of Medical Pharmcology.
13. Kulkarni, S.K., Handbook of Experimental Pharmacology, Vallabh Prakashan, New Delhi.
14. Crossland, J and Thomson, J.H., Essential of Pharmacology, Harper and Row, Publishers, New York.
15. Craig, C.R. and Stitzel, R.R., Modern Pharmacology, Little Brown and Company.

16. Rang, M.P. , Dale, M.M. and Riter, J.M., Pharmacology, Churchill Livingstone.
17. Paul, L., Principles of Pharmacology, Chamman and Hall.
18. Herfindal, E.T. and Hirschman, J.L., Clinical Pharmacy and Therapeutics, William and Wilkins. Katzung, B.G., Basic and Clinical Pharmacology, Prentice Hall International.

Pharmaceutical Jurisprudence DPY- 204

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		L W (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-204	Pharmaceutical Jurisprudence	2	-	-	-	80	40	20	100	-	-	-	-	100	3 Hrs

Unit I **Marks: 16**

Origin and nature of pharmaceutical legislation in India, its scope and objectives. Evolution of the "Concept of pharmacy" as an integral part of the Health care system. Principles and significance of professional Ethics. Critical study of the code of pharmaceutical Ethics drafted by pharmacy council of India.

Unit II **Marks: 16**

Pharmacy Act,1948-The General study of the pharmacy Act with special reference to Education Regulations ,Working of state and central councils,constitution of these councils and functions, Registration procedures under the Act.

Unit III **Marks: 16**

The Drugs and Cosmetics Act, 1940-General study of the Drugs and cosmetics Act and the Rules thereunder. Definitions and salient features related to retail and whole sale distribution of drugs. The powers of Inspectors, the sampling procedures and the procedure and formalities in obtaining licences under the rule. Facilities to be provided for running a pharmacy effectively. General study of the schedules with special reference to schedules C,C1,F,G,J,H,P and X and salient features of labelling and storage conditions of drugs.

Unit IV **Marks: 16**

The Drugs and Magic Remedies (objectionable Advertisement)Act, 1954-General study of the Act, objectives , special reference to be laid on Advertisements, magic remedies and objections 1 and permitted advertisements -diseases which cannot be claimed to be cured. Narcotic Drugs and psychotropic substances Act,1985-A brief study of the act with special reference to its objectives,offences and punishment.

Unit V **Marks: 16**

Brief introduction to the study of the following acts:

1. Latest Drugs (price control) order in force.
2. Poisons Act 1919(as amended to date)
3. Medicinal and Toilet preparations (excise Duties) Act, 1955(as amcnded to date).
4. Medical Termination of Pregnancy Act, 1971 (as amended to date).

Recommended Books

1. Jain N. K., A Textbook of Forensic Pharmacy.
2. Mittal, B.M., A Textbook of Forensic Pharmacy.
3. Malik V., Drug & Cosmetic Act.
4. The Gazette of India. The Drugs and Cosmetics act and rules.
5. The Gazette of India. The Patent act 1970 and its latest amendments.

Drug Store and Business Management DPY- 205

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duratio n of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		LW (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-205	Drug Store & Business Management	3	-	-	-	80	40	20	100	-	-	-	-	100	3 Hrs

Unit I — Marks: 16

Commerce

Introduction-Trade, Industry and commerce, Functions and subdivision of commerce, Introduction to Elements for Economics and Management. Forms of Business Organisations. Channels of Distribution.

Unit II — Marks: 16

Drug House Management- Selection of site, space Lay-out and legal requirments. Importance and objectives of purchasing, selection of suppliers,credit information, tenders, contracts and price determination and legal requirements thereto. Codification, handling of drug stores and other hospital supplies.

Inventory Control- Objects and importance, modern techniques like ABC,VED analysis, the lead time, inventory carrying cost, safety stock, minimum and maximum stock levels, economic order quantity, scrap and surplus disposal.

Unit III — Marks: 16

Sales promotion, Market Research, Salemanship, qualities of a saleman, Advertising and Window Display.Recruitment, training, evaluation and compensation of the pharmacist.
Banking and Finance-Service and functions of bank, Finance planning and sources of finance.

Unit IV — Marks: 16

Accountancy

Introduction to the accounting concepts and conventions.Double entry Book Keeping, Different kinds of accounts. Cash Book, General Ledger and Trial Balance.

Unit V — Marks: 16

Profit and Loss Account and Balance Sheet. Simple techniques of analysing financial statements. Introduction to Budgetting.

Books Recommended

1. Shukla, S. M., Advanced Accountancy, Mahershwari Sahitya Bhawan, Agra.
2. Gupta, R. L., Advanced Accountancy, Vol. I and II, Sultanchand & Company, New Delhi.
3. Kotler, P., Marketing Management, Prentice Hall of India Limited.
4. Stanton, W. J., Fundamentals of Marketing Tata McGraw Hill Limited, New Delhi.
5. Buskir K. and Richard H., Principles of Marketing – The Management View, Hold Rinehard and Winston Incorporated, New York.
6. Sherlekar, S. R., Marketing Management, Himalaya Publishing House, New Delhi.
7. Mote,V. L., Paul, S. and Gupta, G. S., Managerial Economics Concepts and Cases, Tata McGraw Hill Limited, New Delhi.

Hospital And Clinical Pharmacy DPY- 206

Course Code	Title of the Paper	Periods Per week				Distribution of Marks								Grand Total (i= d+h)	Duration of Exam
						Theory		Sessional T (c)	Total (d= a+c)	Practical		L W (g)	Total (h= e+g)		
		L	T	P	C	Max (a)	Min (b)			Max (e)	Min (f)				
DPY-206	Hospital & Clinical Pharmac	3	-	2	-	80	40	20	100	80	40	20	100	200	3 Hrs

Unit I **Marks: 16**

Hospital Pharmacy:

Hospital - Definition, Function, Classifications based on various criteria, Organisation, Management and health delivery system in India.

Hospital Pharmacy:

a. Definition

b. Functions and objectives of Hospital pharmaceutical services. c. Location, Layout, Flow chart of materials and men.

d. Personnel and facilities requrements including equipments based on individual and basic needs.

e. Requirements and abilities required for Hospital Pharmacists.

Unit II **Marks: 16**

Drug Distribution system in Hospitals.

a. Out-patient service b. In-patient services c. Types of services

d. Detailed discussion of unit Dose system, Floor ward stock system,satellite pharmacy services,central sterile services,Bed side pharmacy.

Manufacturing:

a. Economical considerations,estimation of demand.

b. Sterile manufacture-Large and small volume parenterals, faciliteis, requirements, layout production planning , man-power requirements.

c. Non-sterile manufacture-Liquid orals,externals,Bulk concentrates.

d. Procurement of stores and testing of raw materials.

Unit III **Marks: 16**

Nomenclature and uses of surgical instruments and Hospital Equipments and health accessories.P.T.C. (Pharmacy Therapeutic Committee), Hospital Formulary system and their organisation, functioning, composition.Drug Information service and Drug Information Bulletin.Surgical dressing like cotton, gauze, bandages and adhesive tapes including their pharmacopoeial tests for quality. Other hospital supply eg. I.V. sets, B.G. sets, Ryals tubes, Catheters, Syringes etc.Application of computers in; maintenance of records,inventory control,medication monitoring,drug information and data storage and retrieval in hospital retail pharmacy establishment.

Unit IV **Marks: 16**

Clinical Pharmacy:

1. Introduction to Clinical pharmacy practice- Definition,scope.
2. Modern dispensing aspects-pharmacists and patient counselling and advice for the use of common drugs, medication history.
3. Common daily terminology used in the practice of Medicine.
4. Disease, manifestation and pathophysiology including salient symptoms to understand the disease like Tuberculosis, Hepatitis, Rheumatoid Arthritis, Cardio-vascular diseases, Epilepsy, Diabetes, Peptic Ulcer, Hypertension.
5. Physiological parameters with their significance.

Unit V **Marks: 16**

Drug Interactions:

a. Definition and introduction.

b. Mechanism of Drug Interaction.

c. Drug-drug interaction with reference to analgesics, diuretics, cardiovascular drugs, Gastro-intestinal agents. Vitamins and hypoglycemic agents.

d. Drug-food interaction.

Adverse Drug Reaction:

a. Definition and significance.

b. Drug-Induced duseases and Teratogenicity.

Drugs in Clinical Toxicity- Introduction, general treatment of poisoning, systemic antidotes, Treatment of insecticide poisoning, heavy metal poison, Narcotic drugs, Barbiturate, Organophosphorus poisons.

Drug dependences, drug abuse, addictive drugs and their treatment, complications.

Bio-availability of drugs, including factors affecting it.

List of Practicals:

1. Prepare and Dispense Simple Powder.
2. Prepare and Dispense Compound Powder.
3. Prepare and Dispense Powder containing small doses.
4. Prepare and Dispense Powder containing liquids.
5. Prepare and Dispense Powder containing liquefiable substances.
6. Prepare and Dispense Powder containing hygroscopic and deliquescent substances.
7. Prepare and Dispense Powder containing efflorescent materials.
8. Prepare and Dispense effervescent granules.

9. Prepare and Dispense Dusting Powder.
10. Prepare and Dispense Simple Mixture containing Soluble substances only.
11. Prepare and Dispense Mixture containing Indiffusible solids.
12. Prepare and Dispense Mixture containing Diffusible solids.
13. Prepare and Dispense Mixture containing Slightly soluble liquids.
14. Prepare and Dispense Mixture containing Precipitate forming liquids.
15. Prepare and Dispense Mixture containing Small doses of potent medicaments.
16. Prepare and Dispense prescription possessing Physical Incompability (Precipitation).
17. Prepare and Dispense prescription possessing Physical Incompability (Incomplete Solution).
18. Prepare and Dispense prescription possessing Physical Incompability (Separation of immiscible liquids).
19. Prepare and Dispense prescription possessing Chemical Incompability (Alkaloidal salts with alkaline substances).
20. Prepare and Dispense prescription possessing Chemical Incompability (Alkaloidal salts with salicylates).
21. Prepare and Dispense prescription possessing Chemical Incompability (Alkaloidal salts with soluble iodides).
22. Prepare and Dispense prescription possessing Chemical Incompability (Alkaloidal salts with benzoates).
23. Prepare and Dispense prescription possessing Chemical Incompability (Soluble salicylates with acids-Tolerated Incompatability).
24. Prepare and Dispense prescription possessing Chemical Incompability (Soluble salicylates with acids-Adjust Incompatability).
25. Prepare and Dispense prescription possessing Chemical Incompability (Soluble benzoates with acids-Tolerated Incompatability).
26. Prepare and Dispense prescription possessing Chemical Incompability (Soluble benzoates with acids-Adjusted Incompatability).
27. Prepare and Dispense prescription possessing Chemical Incompability (Soluble salicylates with ferric salts).
28. Prepare and Dispense prescription possessing Chemical Incompability (Soluble benzoates with ferric salts).
29. Prepare and Dispense prescription possessing Chemical Incompability (Evolution of carbon dioxide).
30. Prepare and Dispense prescription possessing Chemical Incompability of emulsifying agents.

Books Recommended

1. Allwodd M. C. and Fell J. T., Text book of Hospital Pharmacy, Blackwell Scientific Publication, Oxford.
2 Hassan W. E., Lea and Febiger, Philadelphia Hospital Pharmacy.
3. J.S. Qadry, R.K. Goyal & R.K. Parika, Merchant & Qadry's a text book of Hospital Pharmacy, B.S. Shah Prakashan, Ahmedabad.
4. Pratibha Nand & R.K. Khar, Text Book of Hospital & Clinical Pharmacy, Birla Publications Pvt Ltd., Delhi.
5. S.J. Carter (Ed.), Cooper & Gunn's Dispensing for Pharmaceutical Students, CBS Publishers & Distributors, New Delhi.
6. R.M. Mehta, Dispensing Pharmacy, Vallabh Prakashan, Delhi.

7. S.N. Sharma & N.K. Jain, the Concise Pharmaceutical Dispensing, Prakash B. Printers, Baroda.
8. N.K. Jain & G.D. Gupta, Modern Dispensing Pharmacy, PharmaMed Press, Hyderabad.
9. E.W. Martin, Dispensing of Medications (Formerly Husa's Pharmaceutical Dispensing) Mack Publishing Company, Eastern Pa.